Operation/Reference Guide

MST-431/MSD-431-L

4.3” Modero S Series® Tabletop Touch Panel
4.3" Modero S Series® Wall Mount Touch Panel

Touch Panels

Initial Release: 7/26/2013

AMX Limited Warranty and Disclaimer

This Limited Warranty and Disclaimer extends only to products purchased directly from AMX or an AMX Authorized Partner which include AMX Dealers, Distributors, VIP's or other AMX authorized entity.

AMX warrants its products to be free of defects in material and workmanship under normal use for three (3) years from the date of purchase, with the following exceptions:

- Electroluminescent and LCD Control Panels are warranted for three (3) years, except for the display and touch overlay components are warranted for a period of one (1) year.
- Disk drive mechanisms, pan/tilt heads, power supplies, and MX Series products are warranted for a period of one (1) year.
- AMX lighting products are guaranteed to switch on and off any load that is properly connected to our lighting products, as long as the AMX lighting products are under warranty. AMX also guarantees the control of dimmable loads that are properly connected to our lighting products. The dimming performance or quality there of is not guaranteed, impart due to the random combinations of dimmers, lamps and ballasts or transformers.
- AMX software is warranted for a period of ninety (90) days.
- Batteries and incandescent lamps are not covered under the warranty.
- AMX AutoPatch Epica, Modula, Modula Series4, Modula CatPro Series and 8Y-3000 product models will be free of defects in materials and manufacture at the time of sale and will remain in good working order for a period of three (3) years following the date of the original sales invoice from AMX. The three-year warranty period will be extended to the life of the product (Limited Lifetime Warranty) if the warranty card is filled out by the dealer and/or end user and returned to AMX so that AMX receives it within thirty (30) days of the installation of equipment but no later than six (6) months from original AMX sales invoice date. The life of the product extends until five (5) years after AMX ceases manufacturing the product model. The Limited Lifetime Warranty applies to products in their original installation only. If a product is moved to a different installation, the Limited Lifetime Warranty will no longer apply, and the product warranty will instead be the three (3) year Limited Warranty.

All products returned to AMX require a Return Material Authorization (RMA) number. The RMA number is obtained from the AMX RMA Department. The RMA number must be clearly marked on the outside of each box. The RMA is valid for a 30-day period. After the 30-day period the RMA will be cancelled. Any shipments received not consistent with the RMA, or after the RMA is cancelled, will be refused. AMX is not responsible for products returned without a valid RMA number.

AMX is not liable for any damages caused by its products or for the failure of its products to perform. This includes any lost profits, lost savings, incidental damages, or consequential damages. AMX is not liable for any claim made by a third party or by an AMX Authorized Partner for a third party.

This Limited Warranty does not apply to (a) any AMX product that has been modified, altered or repaired by an unauthorized agent or improperly transported, stored, installed, used, or maintained; (b) damage caused by acts of nature, including flood, erosion, or earthquake; (c) damage caused by a sustained low or high voltage situation or by a low or high voltage disturbance, including brownouts, sags, spikes, or power outages; or (d) damage caused by war, vandalism, theft, depletion, or obsolescence.

This limitation of liability applies whether damages are sought, or a claim is made, under this warranty or as a tort claim (including negligence and strict product liability), a contract claim, or any other claim. This limitation of liability cannot be waived or amended by any person. This limitation of liability will be effective even if AMX or an authorized representative of AMX has been advised of the possibility of any such damages. This limitation of liability, however, will not apply to claims for personal injury.

Some states do not allow a limitation of how long an implied warranty last. Some states do not allow the limitation or exclusion of incidental or consequential damages for consumer products. In such states, the limitation or exclusion of the Limited Warranty may not apply. This Limited Warranty gives the owner specific legal rights. The owner may also have other rights that vary from state to state. The owner is advised to consult applicable state laws for full determination of rights.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, AMX MAKES NO OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AMX EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS LIMITED WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS OF THIS LIMITED WARRANTY. EXCEPT AS OTHERWISE LIMITED BY APPLICABLE LAW, AMX RESERVES THE RIGHT TO MODIFY OR DISCONTINUE DESIGNS, SPECIFICATIONS, WARRANTIES, PRICES, AND POLICIES WITHOUT NOTICE.

AMX Software License and Warranty Agreement

- LICENSE GRANT. AMX grants to Licensee the non-exclusive right to use the AMX Software in the manner described in this License. The AMX Software is licensed, not sold. This license does not grant Licensee the right to create derivative works of the AMX Software. The AMX Software consists of generally available programming and development software, product documentation, sample applications, tools and utilities, and miscellaneous technical information. Please refer to the README.TXT file on the compact disc or download for further information regarding the components of the AMX Software. The AMX Software is subject to restrictions on distribution described in this License Agreement. AMX Dealer, Distributor, VIP or other AMX authorized entity shall not, and shall not permit any other person to, disclose, display, loan, publish, transfer (whether by sale, assignment, exchange, gift, operation of law or otherwise), license, sublicense, copy, or otherwise disseminate the AMX Software. Licensee may not reverse engineer, decompile, or disassemble the AMX Software.
- ACKNOWLEDGEMENT. You hereby acknowledge that you are an authorized AMX dealer, distributor, VIP or other AMX authorized entity in good standing and have the right to enter into and be bound by the terms of this Agreement.
- INTELLECTUAL PROPERTY. The AMX Software is owned by AMX and is protected by United States copyright laws, patent laws, international treaty provisions, and/or state of Texas trade secret laws. Licensee may make copies of the AMX Software solely for backup or archival purposes. Licensee may not copy the written materials accompanying the AMX Software.
- TERMINATION. AMX RESERVES THE RIGHT, IN ITS SOLE DISCRETION, TO TERMINATE THIS LICENSE FOR ANY REASON UPON WRITTEN NOTICE TO LICENSEE. In the event that AMX terminates this License, the Licensee shall return or destroy all originals and copies of the AMX Software to AMX and certify in writing that all originals and copies have been returned or destroyed.
- PRE-RELEASE CODE. Portions of the AMX Software may, from time to time, as identified in the AMX Software, include PRE-RELEASE CODE and such code may not be at the level of performance, compatibility and functionality of the GA code. The PRE-RELEASE CODE may not operate correctly and may be substantially modified prior to final release or certain features may not be generally released. AMX is not obligated to make or support any PRE-RELEASE CODE. ALL PRE-RELEASE CODE IS PROVIDED "AS IS" WITH NO WARRANTIES.
- LIMITED WARRANTY. AMX warrants that the AMX Software (other than pre-release code) will perform substantially in accordance with the accompanying written materials for a period of ninety (90) days from the date of receipt. AMX DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE AMX SOFTWARE. THIS LIMITED WARRANTY GIVES LICENSEE SPECIFIC LEGAL RIGHTS. Any supplements or updates to the AMX SOFTWARE, including without limitation, any (if any) service packs or hot fixes provided to Licensee after the expiration of the ninety (90) day Limited Warranty period are not covered by any warranty or condition, express, implied or statutory.
- LICENSEE REMEDIES. AMX's entire liability and Licensee's exclusive remedy shall be repair or replacement of the AMX Software that does not meet AMX's Limited Warranty and which is returned to AMX in accordance with AMX's current return policy. This Limited Warranty is void if failure of the AMX Software has resulted from accident, abuse, or misapplication. Any replacement AMX Software will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. Outside the United States, these remedies may not available. NO LIABILITY FOR CONSEQUENTIAL DAMAGES. IN NO EVENT SHALL AMX BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OF OR INABILITY TO USE THIS AMX SOFTWARE, EVEN IF AMX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. BECAUSE SOME STATES/COUNTRIES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO LICENSEE.
- U.S. GOVERNMENT RESTRICTED RIGHTS. The AMX Software is provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subparagraph ©(1)(ii) of The Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs ©(1) and (2) of the Commercial Computer Software Restricted Rights at 48 CFR 52.227-19, as applicable.
- SOFTWARE AND OTHER MATERIALS FROM AMX.COM MAY BE SUBJECT TO EXPORT CONTROL. The United States Export Control laws prohibit the export of certain technical data and software to certain territories. No software from this Site may be downloaded or exported (i) into (or to a national or resident of) Cuba, Iraq, Libya, North Korea, Iran, Syria, or any other country to which the United States has embargoed goods; or (ii) anyone on the United States Treasury Department's list of Specially Designated Nationals or the U.S. Commerce Department's Table of Deny Orders. AMX does not authorize the downloading or exporting of any software or technical data from this site to any jurisdiction prohibited by the United States Export Laws.

This Agreement replaces and supersedes all previous AMX Software License Agreements and is governed by the laws of the State of Texas, and all disputes will be resolved in the courts in Collin County, Texas, USA. For any questions concerning this Agreement, or to contact AMX for any reason, please write: AMX License and Warranty Department, 3000 Research Drive, Richardson, TX 75082.

Table of Contents

Introduction 1
Features 1
MST-431 2
Connector Locations 5
Memory 5
Basic Operation 5
Powering on the MST-431 5
Microphone 5
Audio/Video Capabilities 5
MSD-431-L 6
Memory 8
Basic Operation 8
Powering on the MSD-431-L 8
Microphone 8
Audio/Video Capabilities 8
MST-431/MSD-431-L Features 9
Picture View 9
Preview Mode and Normal Mode 10
Picture View Send Command 10
Configuration 11
Bluetooth Support 11
Cleaning the Touch Overlay and Case 11
Installation 13
MST-431 Installation 13
Power via Power Over Ethernet 13
MSD-431-L Installation 14
Installing the MSD-431-L into a wall 14
Uninstalling the MSD-431-L 18
Configuration and Programming 19
Modero S Series Programming Guide 19
Upgrading Firmware 21
Upgrading Firmware via USB stick 21
Upgrading from Previous Firmware 22
Returning to Factory Default Firmware 22
Upgrading Firmware Via NetLinx Studio 23
Viewing devices on the Virtual System 24

Downloading firmware 25
Appendix: Troubleshooting 27
Overview 27
Panel Doesn't Respond To Touches 27
Panel Isn't Appearing In The Online Tree Tab 27
Can't Connect To a NetLinx Master 27
Only One Modero S Series Panel In My System Shows Up 27

Introduction

The Modero S Series® line of touch panels is a cousin to the popular Modero X Series, with features optimized for specific needs. For those customers who just want a control touch panel without all of the additional features offered in the Modero X Series, the Modero S Series panels offer AMX engineering quality and industrial design, a more rugged touch interface, secure locking features, and streaming Voice Over Internet Protocol (VoIP) and video.

The Modero S Series SmoothTouch™ display offers the best blend of resistive & capacitive technologies, including single-touch gestures. A glass overlay improves display quality while extending the touch panel's lifespan and eliminates pillowing of the touch screen surface. The resultant SmoothTouch display works with fingers, gloves, or pointing devices, and resists dirt, water, and light. It also has the benefit of working in environments with high electrical noise.

Features

- **Architectural Design Consistency –** Install both Modero S and Modero X touch panels throughout a facility for consistent style on any budget.
- **Mount to Any Smooth Surface Including Glass –** Use the optional Multi Mount Kit and mount the Modero S wall touch panel to any smooth surface without drilling or cutting.
- **Elegant Room Availability Bar –** Easily glance down the hall to see if meeting spaces are occupied.
- **Powerful Graphics –** Powered by G4, the Modero S Series features streaming video and brilliant 24-bit color depth.

MST-431

The Modero S Series is a touch panel family sophisticated enough for room control yet priced right for the most cost sensitive installations including small huddle spaces and dedicated room scheduling applications. The smallest of our Modero S tabletop touch panels, the MST-431 Modero S Series 4.3" Tabletop Touch Panel (**FG2265-07**) (FIG. 1) still features the advanced technology empowering users to conduct seamless meetings including VoIP, brilliant 24-bit color depth, PoE connectivity, USB and streaming video.

FIG. 1 MST-431 touch panel

The MST-431 features a 5" x 3.4" (128 mm x 87 mm), 6" (152 mm) diagonal 6.0" (152 mm) diagonal display, with a viewable area of 3.7" x 2.1" (95 mm x 54 mm), 4.3" (109 mm) diagonal. The device communicates via Ethernet (10/100 port, RJ-45 connector, supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB for VNC, and HTTP) and USB (1 USB host 2.0, Type A port). The MST-431 also supports Bluetooth keyboard and mouse use via the optional MXA-BT Bluetooth Adapter.

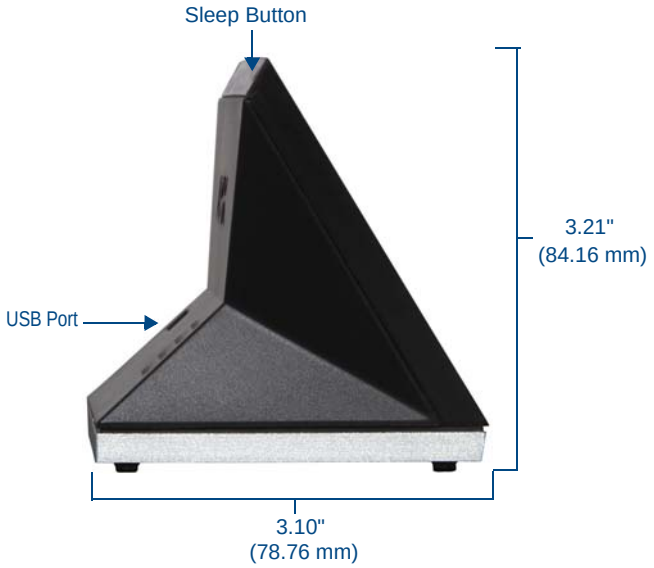

FIG. 2 MST-431 side view

MST-431 Specifications	
Power Requirements:	PoE (Power over Ethernet), 802.3af, class 2
Power Consumption:	• Full-On: 4W • Standby: 2W • Shutdown: 0.6W • •Start-Up Inrush Current: Not applicable due to PoE standard
Front Panel Components:	
Sleep Button:	Single button on top of panel for placing panel in sleep mode, for powering off the panel, and for accessing the Settings Pages.
Microphone:	-42 dB ±3 dB sensitivity FET microphone
Speakers:	4 ohm, 1.5 Watt, 500 Hz cutoff frequency
Rear Panel Components:	
USB connection:	1 easily accessible USB port on back of device, used for connection to keyboard, mouse, or USB drive.
Ethernet 10/100 Port and Cable:	10/100 Base-T RJ-45 connector for Ethernet connectivity and PoE.
Touch Panel Display:	
Display Type:	TFT Active Matrix Color LCD
Display Size:	5" x 3.4" (128 mm x 87 mm), 6" (152 mm) diagonal
Viewable Area:	3.7" x 2.1" (95 mm x 54 mm), 4.3" (109 mm) diagonal
Viewing Angle:	60°/60°/65°/65° (Up/Down/Left/Right)
Screen Resolution (W x H):	480x272
Aspect Ratio (W x H):	16x9
Brightness:	350 cd/m^2
Contrast Ratio:	600:1
Color Depth:	16.7M colors
Backlight Type:	LED
Touch Overlay:	SmoothTouch™

MST-431 Specifications (Cont.)	
Communications:	
Ethernet:	Ethernet: 10/100 port, RJ-45 connector. Supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB (for VNC), HTTP
USB:	(1) USB host 2.0, Type A port: Firmware upgrade, touch panel file transfer, JPEG image viewer, HID Peripherals, USB audio output for headsets
Bluetooth:	HID Profile v1.1, Keyboard/Mouse Support, requires MXA-BT Bluetooth Adaptor.
Video:	
Supported Video Codecs:	MJPEG
Audio:	
Supported Audio Codecs:	• MP2 Layer I and II, MP3 (8 kHz, 11.025 kHz, 12 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, 48 kHz) • AAC-LC (8 kHz, 96 kHz) • G.711 with µLaw (VoIP encode/decode at 8 kHz)
File Formats:	WAV, MP3 (as part of touch panel file only - no USB storage)
Intercom:	Full Duplex VoIP, SIP v2.0 (supported with AMX-CSG)
Operating Environment:	• Operating Temperature: 32° F to 104° F (0° C to 40° C) • Storage Temperature: 4° F to 140° F (-20° C to 60° C) • Humidity Operating: 20% to 85% RH • Humidity Storage: 5% to 85% RH • Power ("Heat") Dissipation: On:13.6 BTU/hr Standby: 10.9 BTU/hr
Dimensions (HWD):	3.22" x 5.04" x 3.10" (82 mm x 128 mm x 79 mm)
Weight:	0.90 lbs (0.41 Kg)
Certifications:	• FCC Part 15 Class B • C-Tick CISPR 22 Class B • CE EN 55022 Class B and EN 55024 • CE EN 60950-1 • IC CISPR 22 Class B • VCCI CISPR 22 Class B • RoHS/WEEE compliant
Included Accessories:	• MST-431 Installation Guide (**93-2265-07**) • MXA-USB-C USB Cover Kit (**FG5968-18**)
Other AMX Equipment:	• MXA-MP, Modero X/S Series Multi Preview (**FG5968-20**) • MXA-MPL, Modero X/S Series Multi Preview Live (**FG5968-10**) • PS-POE-AF-TC, PoE Injector, 802.3AF Compliant (**FG423-83**) • NXA-ENET8-2POE, Gigabit PoE Ethernet Switch (**FG2178-63**) • MSA-STMK-43, Secure Table Mount Kit for Modero S Series Touch Panel, 4.3" (**FG5965-18**) • MXA-BT Bluetooth USB Adapter for Modero X/S Series (**FG5968-19**) • MXA-HST, Bluetooth Handset for Modero X/SSeries Touch Panels (**FG5968-17**) • MXA-CLK, Modero X/S Series Cleaning Kit (**FG5968-16**) • MXA-USB-C, USB Port Covers (**FG5968-18**)

Connector Locations

With the unit facing you, the single USB port for peripherals is located on the rear right side of the device (FIG. 3). The RJ45 connector for PoE is also located on the back of the device.

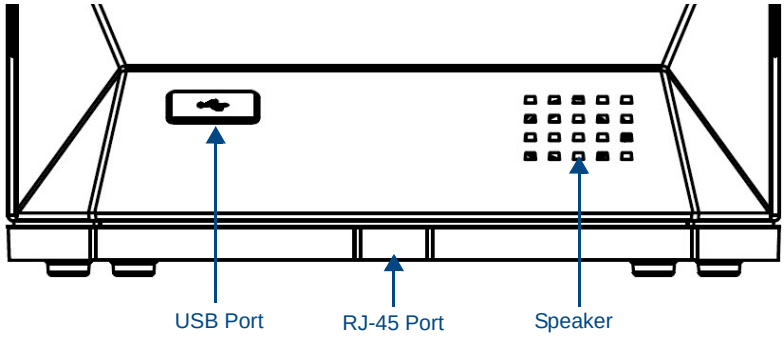

FIG. 3 MST-431 USB port location

Memory

The MST-431 comes with 512 MB of SDRAM and 4 GB of Flash memory, neither of which can be upgraded. A maximum of 2.4 GB is available to the user for projects.

Basic Operation

The MST-431 is operated using its integral touchscreen, as well as the **Sleep** button on the top of the device (FIG. 1). If the device has gone into its Sleep Mode, a touch of the touchscreen or of the **Sleep** button will reactivate it.

Powering on the MST-431

The MST-431 may be powered on by touching and holding the **Sleep** button on the top of the device.

Microphone

The MST-431 contains a built-in microphone on the top of the touch panel for video and audio conferencing capabilities. This microphone is concealed by the casing.

Audio/Video Capabilities

The MST-431 has the capability of displaying multiple JPEG and PNG files at one time. The device also supports motion JPEG video (of the sort used by many IP and Web cameras), as well as MP3 and WAV audio files.

MSD-431-L

The MSD-431-L 4.3" Landscape Wall Mount Touch Panel (**FG2265-03**) has a sleek style to complement the Modero X Series touch panels, with a new elegant room availability indicator bar and glass mounting option. Now even the smallest, most cost sensitive meeting spaces can benefit from a dedicated scheduling panel without compromising the architectural beauty of the facility, allowing users to view the room schedule at a glance and even reserve the room right from the panel.

The MSD-431-L features a 35" x 3.4" (128 mm x 87 mm), 6" (152 mm) diagonal display, with a viewable area of 3.7" x 2.1" (95 mm x 54 mm), 4.3" (109 mm) diagonal. The device communicates via Ethernet (10/100 port, RJ-45 connector, supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB for VNC, and HTTP) and USB (1 USB host 2.0, Type A port and 1 Micro-USB device port). The MSD-431-L also supports Bluetooth keyboard and mouse use via the optional MXA-BT Bluetooth Adapter.

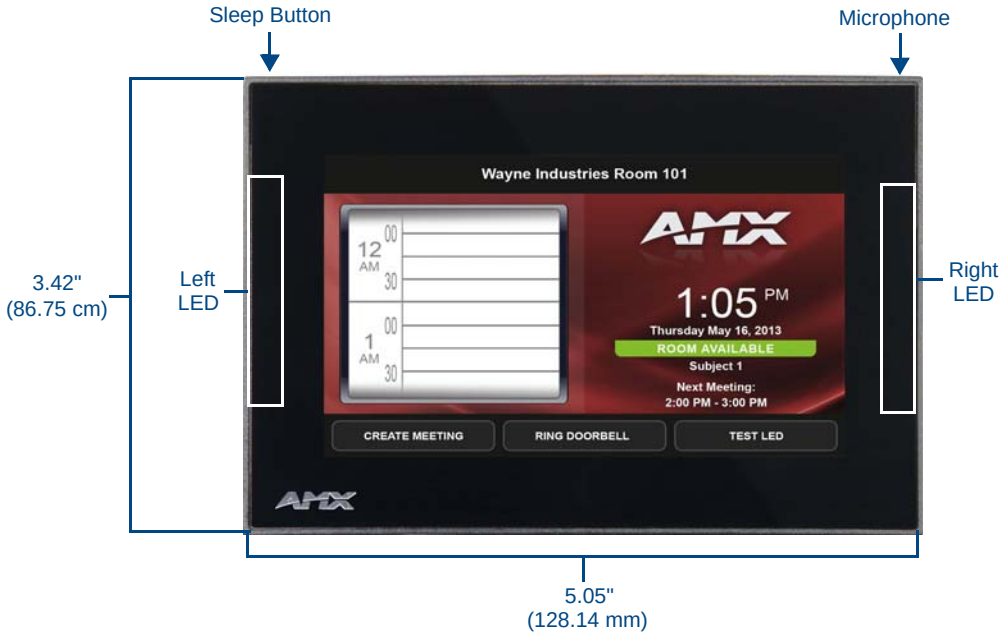

FIG. 4 MSD-431-L

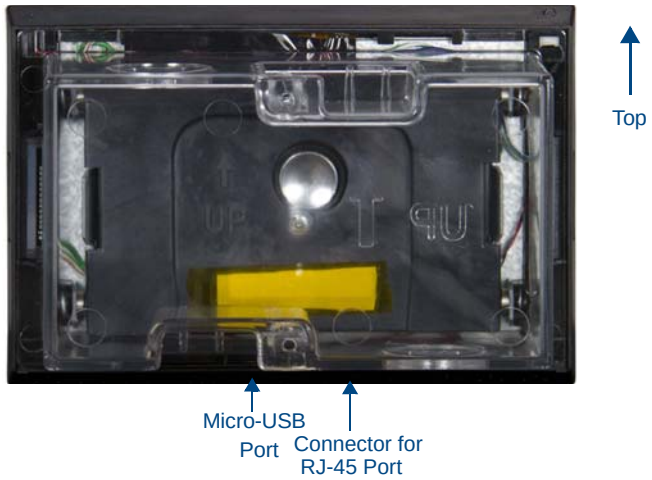

FIG. 5 Rear of the MSD-431-L

MSD-431-L Specifications	
Power Requirements:	PoE (Power over Ethernet), 802.3af, class 3
Power Consumption:	• *Full-On:* 4W maximum • *Standby:* 2W • *Shutdown:* 0.6W • *Start-Up Inrush Current:* Not applicable due to PoE standard
Front Panel Components:	
LEDs:	Red and green LEDs on left and right side of panel, used to signal room availability.
Sleep Button:	Single button on edge of panel for placing panel in sleep mode, for powering off the panel, and for accessing the Settings Pages.
Microphone:	-42dB ± 3dB sensitivity FET microphone
Speakers:	4 ohm, 2 Watt, 300Hz cutoff frequency
Rear Panel Components:	
Micro-USB Port:	5-pin Micro-USB connector used for firmware upgrades
Ethernet 10/100 Port:	10/100 Base-T RJ-45 connector for Ethernet connectivity and PoE.
Touch Panel Display:	
Display Type:	TFT Active Matrix Color LCD
Display Size:	5" x 3.4" (128 mm x 87 mm), 6" (152 mm) diagonal
Viewable Area (W x H):	3.7" x 2.1" (95 mm x 54 mm), 4.3" (109 mm) diagonal
Viewing Angle:	60°/60°/65°/65° (Up/Down/Left/Right)
Screen Resolution (W x H):	480x272
Aspect Ratio (W x H):	16:9
Brightness:	350 cd/m^2
Contrast Ratio:	600:1
Color Depth:	16.7M colors
Backlight Type:	LED
Touch Overlay:	SmoothTouch™
Communications:	
Ethernet:	Ethernet: 10/100 port, RJ-45 connector. Supported IP and IP-based protocols: UCP, TCP, ICMP, ICSP, IGMP, DHCP, Telnet, FTP, DNS, RFB (for VNC), HTTP
USB:	Micro-USB: (1) Micro-USB host 2.0, port: Firmware upgrade, touch panel file transfer, JPEG image viewer, HID Peripherals, USB audio output for headsets
Bluetooth:	HID Profile v1.1, Keyboard/Mouse Support, requires MXA-BT Bluetooth Adaptor.
Video:	
Streaming/File Formats:	MJPEG
Audio:	
Streaming/File Formats:	WAV, MP3 (as part of touch panel file only - no USB storage)
Intercom:	Full Duplex VoIP, SIP v2.0 (supported with AMX-CSG)
Operating Environment:	• Operating Temperature: 32° F to 104° F (0° C to 40° C) • Storage Temperature: 4° F to 140° F (-20° C to 60° C) • Humidity Operating: 20% to 85% RH • Humidity Storage: 5% to 85% RH • Power ("Heat") Dissipation: On: 13.6 BTU/hr, Standby: 10.9 BTU/hr
Dimensions (HWD):	3 7/16" x 5 1/16" x 2 5/16" (87 mm x 128 mm x 58 mm)

MSD-431-L Specifications (Cont.)	
Weight:	0.5 lbs (0.2 Kg)
Certifications:	• FCC Part 15 Class B • C-Tick CISPR 22 Class B • CE EN 55022 Class B and EN 55024 • CE EN 60950-1 • IC CISPR 22 Class B • VCCI CISPR 22 Class B • RoHS / WEEE compliant
Included Accessories:	• MSD-431-L Quick Start Guide (**93-2265-03**) • MSD-431-L Installation Template (**68-2265-01**)
Other AMX Equipment:	• MXA-MP, Modero X/S Series Multi Preview (**FG5968-20**) • MXA-MPL, Modero X/S Series Multi Preview Live (**FG5968-10**) • PS-POE-AF-TC, PoE Injector, 802.3AF Compliant (**FG423-83**) • NXA-ENET8-2POE, Gigabit PoE Ethernet Switch (**FG2178-63)** • MSA-MMK-43, Multi Mount Kit, 4.3" Modero S Wall Mount (**FG2265-13**) • MXA-BT Bluetooth USB Adapter for Modero X/S Series (**FG5968-19**) • MXA-HST, Bluetooth Handset for Modero X/S Series Touch Panels (**FG5968-17**) • MXA-CLK, Modero X/S Series Cleaning Kit (**FG5968-16**)

Memory

The MSD-431-L comes with 512 MB of SDRAM and 4 GB of Flash memory, neither of which can be upgraded. A maximum of 2.4 GB is available to the user for projects.

Basic Operation

The MSD-431-L is operated using its integral touchscreen, as well as the **Sleep** button on the top of the device (FIG. 4). If the device has gone into its Sleep Mode, a touch of the touchscreen or of the **Sleep** button will reactivate it.

Powering on the MSD-431-L

The MSD-431-L may be powered on by touching and holding the **Sleep** button on the top of the device.

Microphone

The MSD-431-L contains a built-in microphone above the touch screen for video and audio conferencing capabilities. This microphone is concealed by the casing.

Audio/Video Capabilities

The MSD-431-L has the capability of displaying multiple JPEG and PNG files at one time. The device also supports streaming motion JPEG video (of the sort used by many IP and Web cameras), as well as MP3 and WAV audio files.

MST-431/MSD-431-L Features

Picture View

By connecting a USB drive via one of the device's USB ports (FIG. 3), Picture View allows the MST-431 to access JPEG images on that drive and display them on the touchscreen (FIG. 6). Individual images may be accessed at any time, or the entire collection may be displayed for predetermined times. Picture View may be stopped at any time by removing the USB drive, and the MST-431 will return to its default display page.

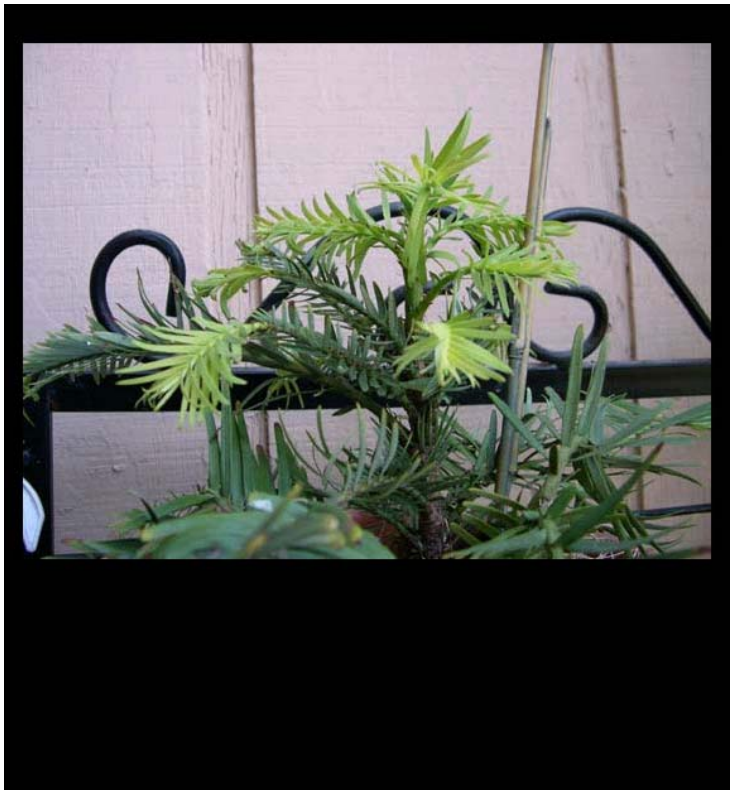

FIG. 6 Picture View display

The maximum source resolution for Picture View is 1920x1920 pixels.The maximum displayed resolution is the same as the screen resolution.

To start Picture View:

1. Connect a USB drive to the device. Picture View will automatically recognize all available images on the drive and start displaying them on the touchscreen.
2. When the images begin to display, touch any place on the touchscreen to open the configuration popup menu (FIG. 7). If no selection is made, this menu will remain in place for 15 seconds and then disappear. It may be accessed again by touching anywhere on the touchscreen.
3. On the leftmost amber button, select between **Rand** (images display at random) and **A-Z** (images display in alphabetical order based on the name of the file).
4. The four grey buttons allow scrolling through saved images and the rate of display:
   - The **Previous Image Saved** button returns the display to the first image uploaded by Page View.
   - The **Stop** button stops Page View and returns to the default panel page.

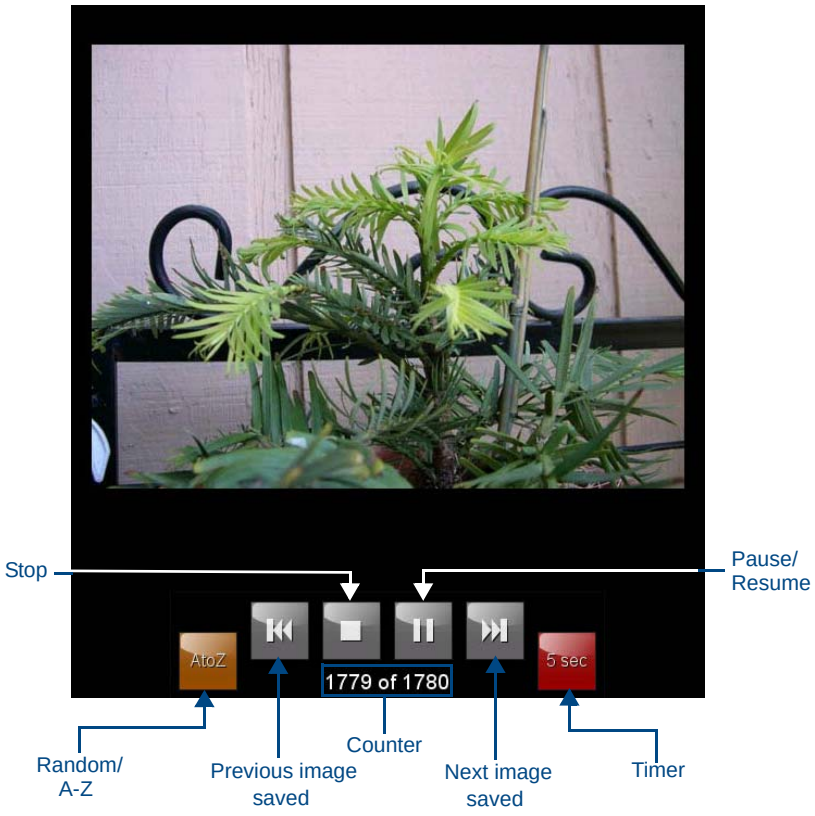

FIG. 7 Picture View configuration popup menu

- The **Pause/Resume** button allows the display to stop on one particular image. Press it again to resume the display procession.
- The **Next Image Saved** button returns the display to the last image uploaded by Page View. If the panel has not accessed all of the images available on a USB drive, Page View will display the last one uploaded to date.

5. On the rightmost red button, select the number of seconds a selected image will be displayed in Picture View. This may be selected between 5, 10, 15, 30, and 60 seconds.
6. The counter beneath the buttons displays the number of images currently uploaded by the MST-431 versus the number detected on the USB drive.

Preview Mode and Normal Mode

Picture View has two modes: Preview Mode and Normal Mode. Preview Mode allows the user to configure Picture View. Once a USB drive containing images is inserted into the panel, the images will begin to display. Touching any place on the display will result in the configuration popup to slide from the bottom of the display.

Picture View goes into its Normal Mode when the MST-431 goes into idle timeout while connected to a USB drive. Normal Mode displays images until the touchscreen is touched, or some other wakeup event is detected. When the device goes back into timeout, Normal Mode will return to displaying images until the USB drive is removed from the device.

Picture View Send Command

The **^PIC** Send Command stops either mode of Picture View, or starts Preview Mode. For more information, please refer to the *Modero S Series Programming Guide*, available at **www.amx.com**.

NOTE

All images must be in JPEG format. PNG and other image formats cannot be viewed through Picture View.

Configuration

The MST-431 and MSD-431-L are equipped with Settings Pages that allow you to set and configure various features on the panels. For more information on connecting and configuring the touch panels to a network, please refer to the *Modero S Series Programming Guide*, available at **www.amx.com**.

Bluetooth Support

Both the MST-431 and the MSD-431-L allow the use of Bluetooth keyboard and mouse combinations, using HID Profile v1.1. Using a keyboard and mouse with the device requires use of the MXA-BT Bluetooth USB Adaptor (**FG5968-19**).

Cleaning the Touch Overlay and Case

Both the MST-431 and the MSD-431-L come with the MXA-CLK Modero X Series Cleaning Kit (**FG5968-16**), which may be used to clean fingerprints and dirt from the device. This kit comes with cleaning cloths and a bottle of cleaning fluid specifically for use with the device.

When cleaning the device, **do not directly spray the device with cleaning fluid**. Instead, spray the cloth and then apply the cloth to the touch screen. Do **NOT** use abrasives of any type to clean the device, as abrasives may permanently damage or remove the device's finish.

Installation

MST-431 Installation

Any USB peripherals (mouse, keyboard, etc.) may be connected to the USB port on the rear of the device (FIG. 8). Updates to the device's firmware are also made via the USB port..

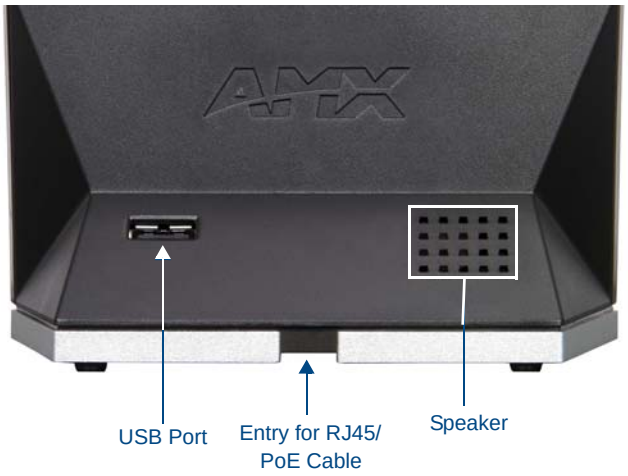

FIG. 8 Connectors on the rear of the MST-431

Power via Power Over Ethernet

Power for the MST-431 is supplied via Power Over Ethernet (PoE), utilizing an AMX-certified, capacitive touch-compliant PoE injector such as the PS-POE-AT High Power PoE Injector (**FG423-81**) or other approved AMX PoE power source. The incoming Ethernet cable should be connected to the RJ45 port on the device (FIG. 8).

MSD-431-L Installation

The MSD-431-L may be installed directly into a solid surface environment, using either solid surface screws or the included locking tabs for different mounting options. Once installed, the MSD-431-L is contained within a clear outer housing known as the back box (FIG. 9). This back box is removed when installing the device into a wall or into a Rough-In Box.

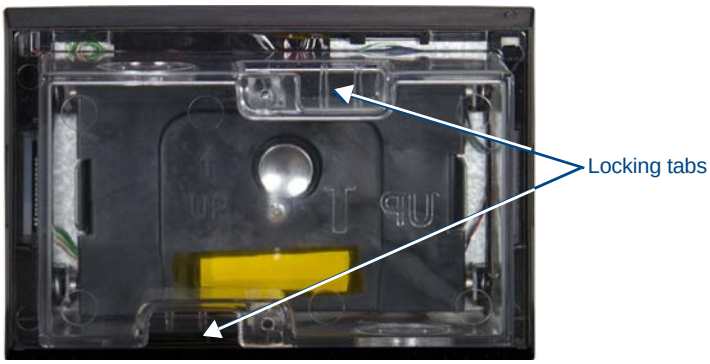

FIG. 9 MSD-431-L Back Box

Installing the MSD-431-L into a wall

The MSD-431-L comes with a clear plastic backbox (designed to attach the panel to most standard wall materials. This backbox has four locking tabs (two on top and two on bottom) to help lock the backbox to the wall. These locking tabs are only extended AFTER the backbox is inserted into the wall. (FIG. 10 and FIG. 11).

WARNING

When installing the backbox, make sure that the assembly is in the correct position and in the correct place. Once the locking tabs are extended and locked into place, removing the backbox may be difficult without having access to the back of the wall or causing damage to the wall.

NOTE

For typical mounting surfaces, such as drywall, use the locking tabs as the primary method for securing the back box to the surface. For thin walls or solid surfaces, use mounting screws (not included).

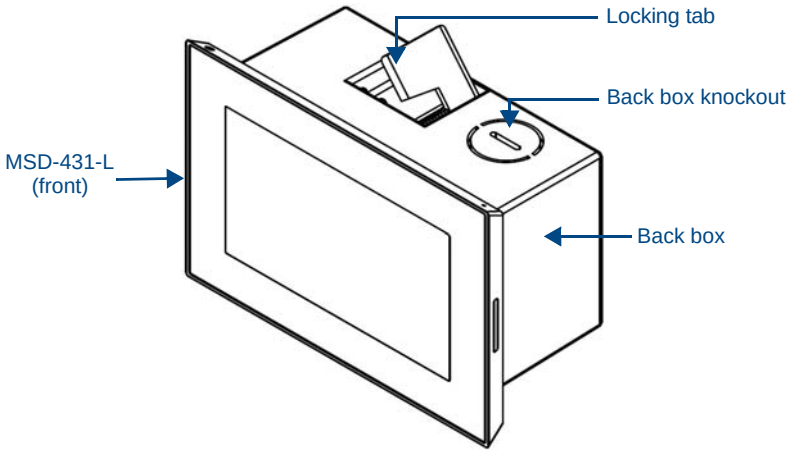

FIG. 10 Side view of MSD-431-L

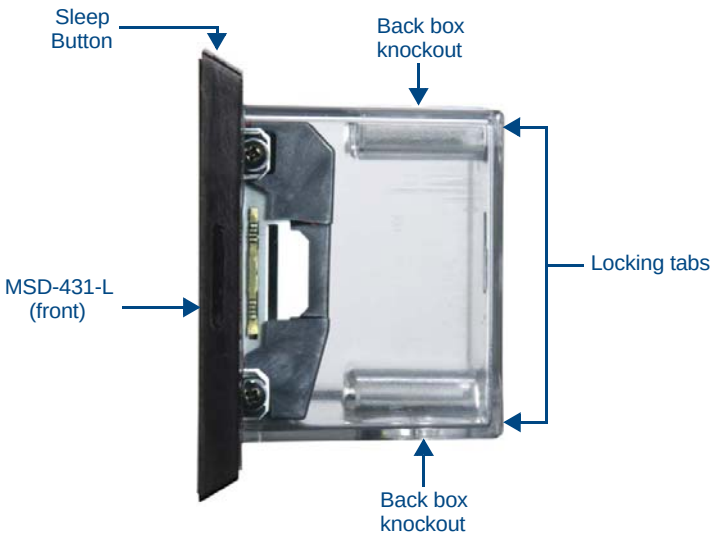

FIG. 11 Side view of MSD-431-L

NOTE

In order to guarantee a stable installation of the MSD-431-L, the thickness of the wall material must be a minimum of .50 inches (1.27cm) and a maximum of .875 inches (2.22cm). The mounting surface should also be smooth and flat.

WARNING

The maximum recommended torque to screw in the locking tabs on the plastic back box is 5 IN-LB [56 N-CM]. Applying excessive torque while tightening the tab screws, such as with powered screwdrivers, can strip out the locking tabs or damage the plastic back box.

To install the back box:

1. Prepare the area by removing any screws or nails from the drywall before beginning the cutout process.
2. For best results, use the MSD-431-L Installation Template (**68-2265-01**) to ensure proper placement (FIG. 12). The template is marked to ensure that the touch panel and back box are properly aligned.

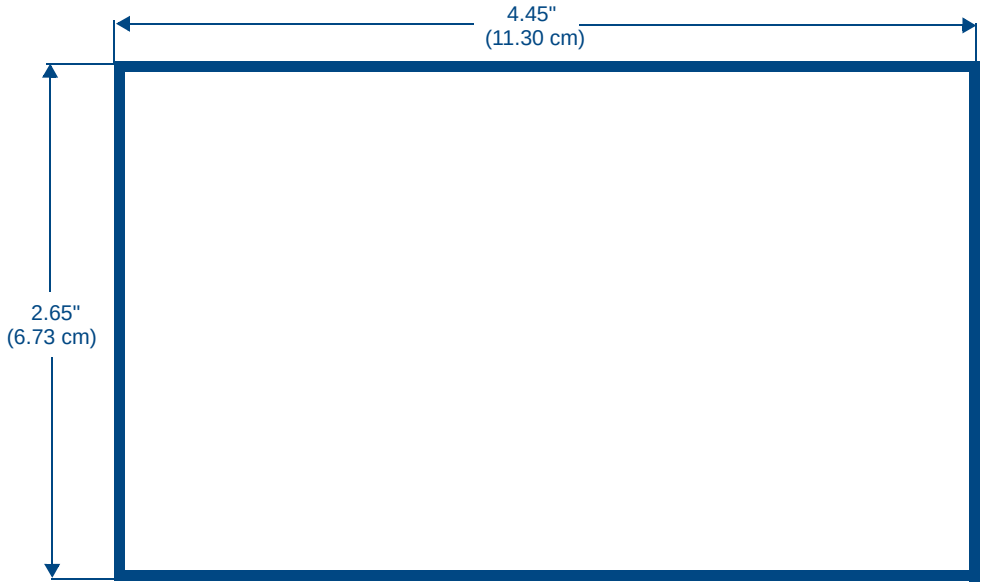

FIG. 12 MSD-431-L Installation Template

WARNING

Using the included template to select the final placement of the back box is highly recommended. The outside edges of the template are the same dimensions as the touch panel, which allows you to troubleshoot possible conflicts with wall edges, doors, and other potential obstacles.

3. After ensuring proper placement, cut out the mounting surface for the back box, using the MSD-431-L Installation Template as a guide.

CAUTION

Making sure the actual cutout opening is slightly smaller than the provided dimensions is highly recommended. This action provides the installer with a margin for error if the opening needs to be expanded. Too little wall material removed is always better than too much.

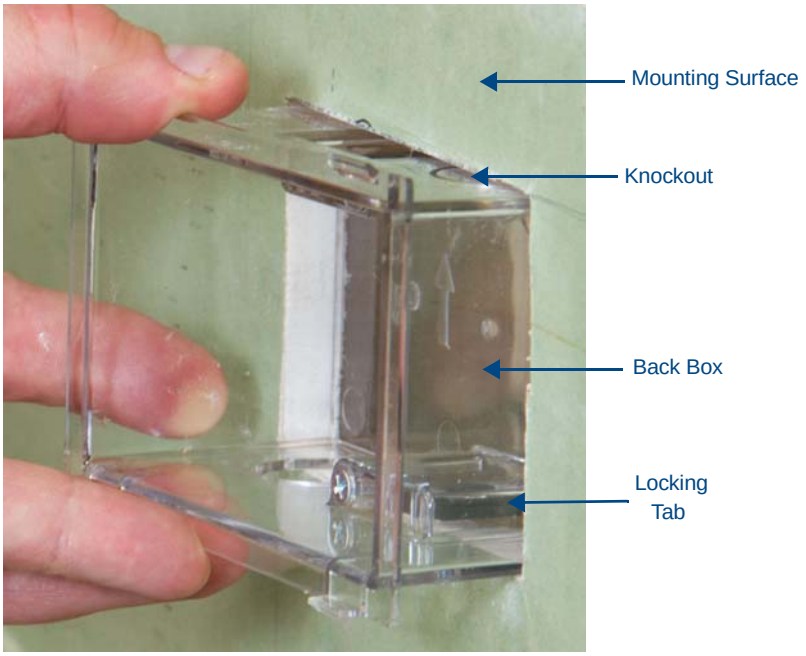

FIG. 13 MSD-431-L Back Box Installation

4. Thread the incoming Ethernetfrom their terminal locations through the surface opening (FIG. 13). *Leave enough slack in the wiring to accommodate any re-positioning of the panel.*

NOTE

The Micro-USB port cannot be used while the touch panel installed in the back box. The MSD-431 must be removed from the wall and the back box in order to access the Micro-USB port.

5. Remove the back box knockouts (FIG. 13) and thread the incoming wiring through the knockout holes.
6. Thread the incoming Ethernet from the surface opening and through the knockouts.
7. Push the back box into the mounting surface. Insure that the locking tabs lie flush against the back box and that the back box goes freely into the opening.
8. Extend the locking tabs on the sides of the back box by tightening the screws inside the box until snug. Not all of the tabs must be extended to lock the back box in place, but extending a minimum of the top and bottom tabs is highly recommended. Apply enough pressure to the screw head to keep the box flush with the wall: this ensures that the locking tabs will tighten up against the inside of the wall.
   The back box is clear to allow visual confirmation that the tabs have been extended and are gripping the wall, as well as in assisting with removal if necessary.
9. Insert each connector into its corresponding location along the back of the device (FIG. 14).

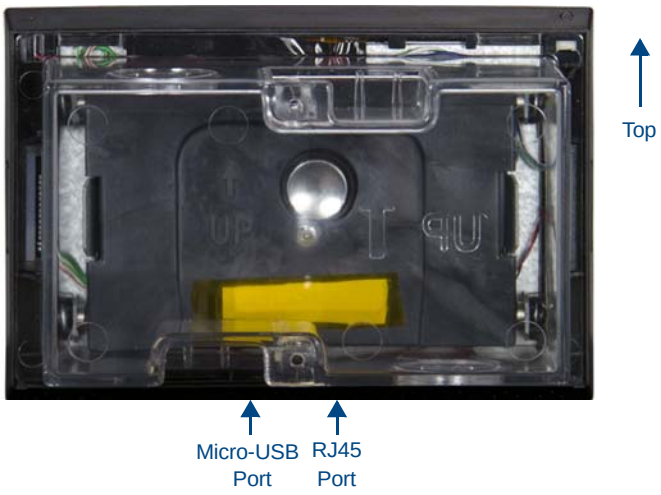

FIG. 14 Rear of the MSD-431-L

10. Test the incoming wiring by attaching the panel connections to their terminal locations and applying power. Verify that the panel is receiving power and functioning properly to prevent repetition of the installation.

NOTE

Do not disconnect the connectors from the touch panel. The unit must be installed with the attached connectors before being inserted into the mounting surface.

11. Latch the panel onto the top hooks on the back box and push it down onto the bottom snaps (FIG. 15). Press gently but firmly on the ends until the snaps "click" to lock it down.

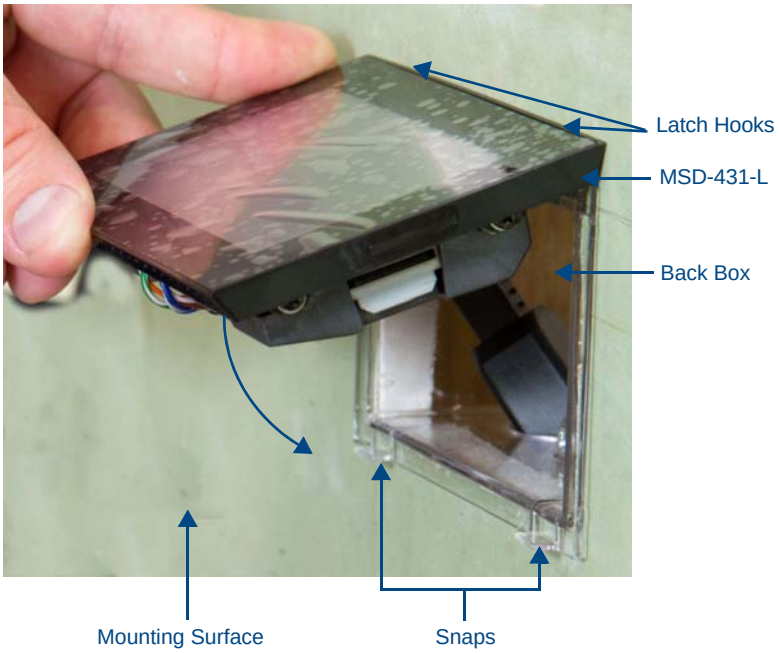

FIG. 15 Installing the MSD-431-L

If you see a gap between the panel and the back box, or feel any binding while locking down the panel, stop immediately and verify that no cables or other items are in the way. Do not force the panel into position, as this can cause damage to the touch screen or the panel electronics.

12. Reconnect the terminal Ethernet and USB to their respective locations on either the Ethernet port or NetLinx Master.

Uninstalling the MSD-431-L

The MSD-431-L is held in place to the back box via latch hooks and clips on the back box (FIG. 15), securing it to the mounting surface. In certain circumstances, such as firmware updates or other maintenance that requires accessing the device's Micro-USB ports the device may need to be removed from the back box. The clips that lock down the MSD-431-L's bottom edge may be unlatched in order to remove the device from the mounting surface.

To remove an MSD-431-L from its back box:

1. From the bottom, pull gently outward from the back box. Gently rock the panel back and forth to free the bottom from the back box.
2. Rotate it up to release the top latch hooks, and carefully pull the device free from the back box. Take care not to damage or pull the connections on the back of the device.

Always pull on the frame of the touch panel. NEVER pull on the glass edge.

Configuration and Programming

Programming the MST-431 and MSD-431-L require the use of the latest versions of NetLinx Studio and TPDesign 4, both available at www.amx.com.

Modero S Series Programming Guide

Information on *Settings* pages, panel configuration, and programming is included in the *Modero S Series Programming Guide*, available at **www.amx.com**.

Upgrading Firmware

NOTE

*Programming the MST-431 and MSD-431-L require the use of the latest versions of NetLinx Studio and TPDesign 4, both available from **www.amx.com**.*

Upgrading Firmware via USB stick

Firmware and TPDesign 4 file downloads may be made via USB stick. When looking at the device from the front, the MST-431 has one USB port on the rear right of the device (FIG. 3). Since the MSD-431-L uses a Micro-USB connection, you will need an adaptor to connect a USB stick to the device.

To upgrade the firmware on the MST-431 and MSD-431-L to the latest version:

1. Download the latest MST-431 and MSD-431-L firmware from **www.amx.com** and save it to a USB stick.

NOTE

The firmware or panel file you intend to load needs to be located in a specifically named folder that is different for each panel type. The folder names are "MST-431" or MSD-431.

2. Insert the USB stick into an available USB port. This may require disassembling the MSD-431-L to access the USB ports if a USB extension was not already installed.
3. Turn on the MST-431 and MSD-431-L and allow it to boot up. When it has booted up, press and hold the *Sleep* button for 3 seconds to open the *Settings* page.

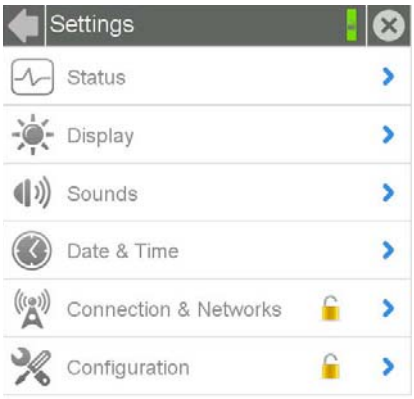

FIG. 16 Settings page

4. From the *Settings* page, select the *Configuration* page. This may require entering a password.
5. From the *Configuration* page, select *Admin*.
6. From the *Admin Configuration* page, select *Install Firmware*.
7. In the *Firmware Installation* page, select *New.*
8. The *Confirmation Dialog* box (FIG. 18) will ask “Are you sure you want to install the following firmware?” The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.
9. The touch panel will now prompt you to remove the USB stick to continue. When the USB stick is removed, the touch panel will reboot.

FIG. 17 New Firmware installation confirmation dialog box

Upgrading from Previous Firmware

The MST-431 and MSD-431-L allow the option to revert the device to the previous firmware run before an upgrade. To upgrade the device from previously loaded firmware:

1. From the *Settings* page, select the *Configuration* page.
2. From the *Configuration* page, select *Admin*.
3. From the *Admin Configuration* page, select *Install Firmware*.
4. In the *Firmware Installation* page, select *Previous*.
5. The *Confirmation Dialog* box (FIG. 18) will ask "Are you sure you want to install the following firmware?" The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.

FIG. 18 Previous Firmware installation confirmation dialog box

6. If you choose **Yes**, the device will retrieve the files and then reboot.

Returning to Factory Default Firmware

The MST-431 and MSD-431-L allow the option to return the device to its original factory default firmware, which may be necessary in certain situations. To return the device to its factory default firmware:

1. From the *Settings* page, select the *Configuration* page.
2. From the *Configuration* page, select *Admin*.
3. From the *Admin Configuration* page, select *Install Firmware*.
4. In the *Firmware Installation* page, select *Factory.*
5. The *Confirmation Dialog* box (FIG. 18) will ask "Are you sure you want to install the following firmware?" The option to choose **Yes** will be enabled after five seconds. Press **Yes** to load the firmware listed, and **No** to return to the *Firmware Installation* popup window.
6. If you choose **Yes**, the device will retrieve the files and then reboot.

FIG. 19 Previous Firmware installation confirmation dialog box

Upgrading Firmware Via NetLinx Studio

The MST-431 and MSD-431-L use an Ethernet connection for programming, firmware updates, and touch panel file transfer via NetLinx Studio. If you have access to the panel's network, you may transfer files directly to the panel through NetLinx Studio

NOTE

Firmware upgrades cannot be made through an Ethernet-connected PC to the touch panel, unless that PC is connected to the panel's network. Upgrades cannot be made with NetLinx Studio through a USB connection to the panel from a PC. For more information on firmware transfers, please refer to the online help in NetLinx Studio.

To upgrade firmware via NetLinx Studio:

1. Before starting, in the device's *Settings* pages, the panel's Master Connection must be set as either *Auto* (the default) or *URL* with the PC's IP address as the target. For more information, please refer to the *Modero S Series Programming Guide*, available at **www.amx.com**.

NOTE

If setting the Master Connection to Auto, the panel may not always search for available NetLinx Masters.. Also, if the Windows Firewall is not allowing the server socket on UDP 1319, the panel may not be visible.

2. Launch NetLinx Studio and select **Settings > Master Communication Settings** from the Main menu to open the *Master Communication Settings* dialog (FIG. 20)

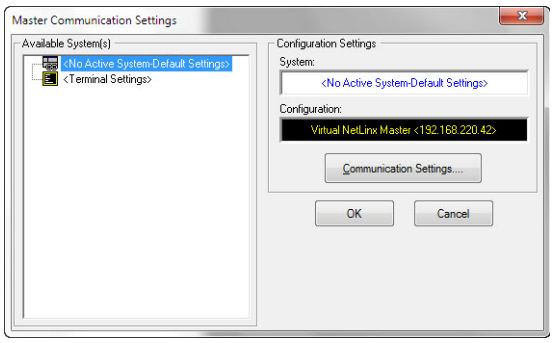

FIG. 20 Master Communications Settings dialog box

3. Click the **Communications Settings...** button to open the *Communications Settings* dialog box (FIG. 21).

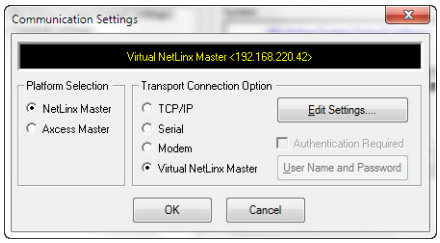

FIG. 21 Communications Settings dialog box

4. Click on the **NetLinx Master** radio button from the *Platform Selection* section.
5. Click on the **Virtual Master** radio box from the *Transport Connection Option* section to configure the PC to communicate directly with a panel. Everything else, such as the Authentication, is greyed-out because this connection is not going through the Master's UI.
6. Click the **Edit Settings** button on the *Communications Settings* dialog to open the *Virtual NetLinx Master Settings* dialog (FIG. 22).

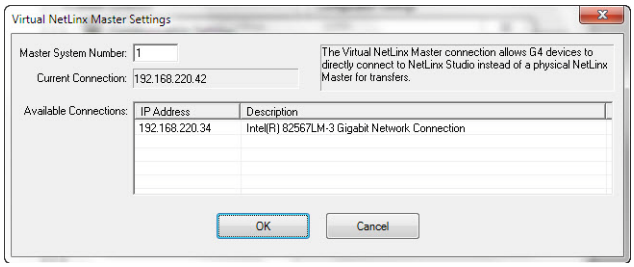

FIG. 22 Virtual NetLinx Master Settings

7. Within this dialog, enter the *Master System number*. The default is **1**.
8. In the *Available Connections* section, click on the IP address for the touch panel to select it.
9. In the *Virtual NetLinx Master Settings* dialog box, click **OK** to close the box.
10. In the *Communications Settings* dialog box, click **OK** to close the box.
11. In the *Master Communications Settings* dialog box, click **OK** to save your settings and return to the main NetLinx Studio application.
12. Click the **OnLine Tree** tab in the Workspace window to view the devices on the Virtual System. *The default System value is 1*.
13. Right-click on the *Empty Device Tree/System* entry and select **Refresh System** to re-populate the list.

NOTE

The panel will not appear as a device below the virtual system number, in the Online Tree *tab, until both the system number used in step 14 for the Virtual NetLinx Master is entered into the Master Connection section of the* System Settings *page and the panel is restarted.*

14. The OnLine Tree should now display the connection to the device. The *Connection Status* Icon on the device may take up to five seconds to register the connection.

Viewing devices on the Virtual System

1. After the *Communication Verification* dialog window verifies active communication between the Virtual Master and the panel, click the **OnLine Tree** tab in the Workspace window (FIG. 23) to view the devices on the Virtual System. *The default System value is **1***.
2. Right-click on the System entry (FIG. 23) and select **Refresh System** to re-populate the list. Verify the panel appears in the **OnLine Tree** tab of the Workspace window.

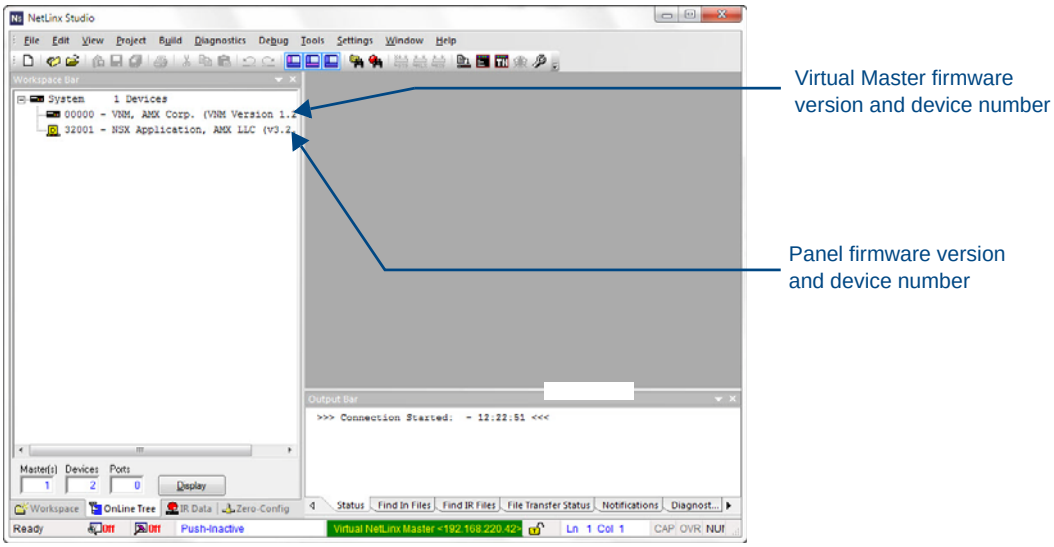

FIG. 23 NetLinx Workspace window (showing panel connection via a Virtual NetLinx Master)

Downloading firmware

NOTE

*The panel-specific firmware is shown on the right of the listed panel. Download the latest firmware file from **www.amx.com** and then save the Kit file to your computer. Note that each Kit file is intended for download to its corresponding panel. In some cases, several Kit files may be included in a .zip file; extract the .zip file to access the required Kit file.*

1. If the panel firmware version is not the latest available; locate the latest firmware file from **www.amx.com**.
2. Click on the desired Kit file link and after accepting the Licensing Agreement, verify download of the Modero Kit file to a known location.
3. Select **Tools > Firmware Transfers > Send to NetLinx Device** from the main menu to open the *Send to NetLinx Device* dialog (FIG. 24). Verify that the panel's System and Device number values match those values listed within the System folder in the **OnLine Tree** tab of the Workspace window.

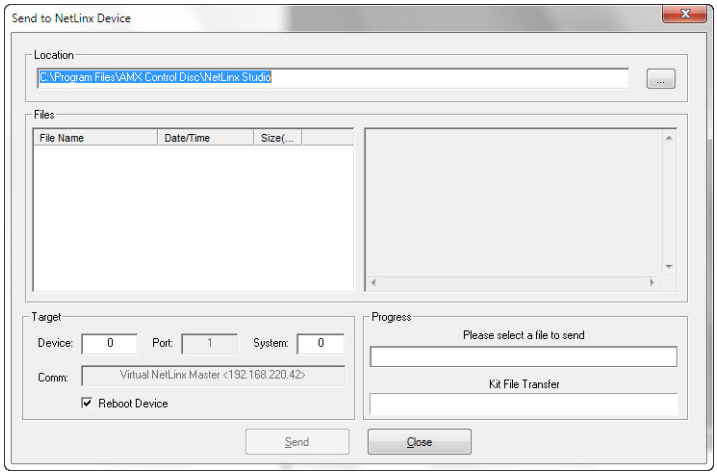

FIG. 24 Send to NetLinx Device dialog window

4. Select the appropriate Kit file from within the *Browse for Folder* window (FIG. 25).
5. Select the panel's Kit file from the **Files** section.
6. Enter the **Device** value associated with the panel and the **System** number associated with the Master (*listed in the OnLine Tree tab of the Workspace window*). *The Port field is greyed-out.*

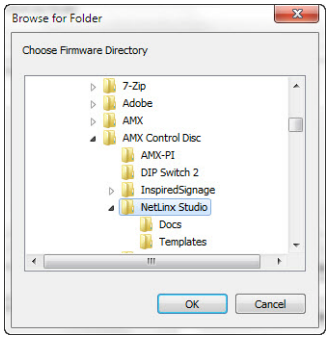

FIG. 25 Browse for Folder window

7. Click the **Reboot Device** checkbox if it is not already checked. This causes the touch panel to reboot after the firmware update process is complete.
8. Click **Send** to begin the transfer. The file transfer progress is indicated on the bottom-right of the dialog.
9. After the file transfer is complete, the panel will automatically reboot.
10. After the panel has finished rebooting, right-click the associated System number and select **Refresh System**. This causes a refresh of all project systems, establishes a new connection to the Master, and populates the System list with devices on your particular system.
11. Confirm that the panel has been properly updated to the correct firmware version.

NOTE

*Verify you have downloaded the latest firmware file from **www.amx.com** and then save the Kit file to your computer.*

Appendix: Troubleshooting

Overview

This section describes the solutions to possible hardware/firmware issues that could arise during the common operation of a Modero S touch panel.

Panel Doesn't Respond To Touches

Symptom: The device either does not respond to touches on the touch screen or does not register the touch as being in the correct area of the screen.

If the screen is off:

- *The device may be in Display Sleep Mode.* Press and hold the **Sleep** button to wake up the panel.
- *The device may not be connected to power.* Verify that the power source is connected to the device and receiving power.

Panel Isn't Appearing In The Online Tree Tab

1. Verify that the System number is the same on both the NetLinx Project Navigator window and the System Settings page on the device.
2. Verify the proper NetLinx Master IP and connection methods entered into the Master Connection section of the *System Settings* page.

Can't Connect To a NetLinx Master

Symptom: I can't seem to connect to a NetLinx Master using NetLinx Studio.

Select *Settings* > *Master Comm Settings* > *Communication Settings* > *Settings (for TCP/IP)*, and uncheck the "Automatically Ping the Master Controller to ensure availability".

The pinging is to determine if the Master is available and to reply with a connection failure instantly if it is not. Without using the ping feature, a connection may still be attempted, but a failure will take longer to be recognized.

If you are trying to connect to a Master controller that is behind a firewall, you may have to uncheck this option. Most firewalls will not allow ping requests to pass through for security reasons.

When connecting to a NetLinx Master controller via TCP/IP, the program will first try to ping the controller before attempting a connection. Pinging a device is relatively fast and will determine if the device is off-line, or if the TCP/IP address that was entered was incorrect.

If you decide not to ping for availability and the controller is off-line, or you have an incorrect TCP/IP address, the program will try for 30-45 seconds to establish a connection.

Only One Modero S Series Panel In My System Shows Up

Symptom: I have more than one Modero S Series panel connected to my System Master and only one shows up.

Multiple NetLinx Compatible devices can be associated for use with a single Master. If the user does not assign a device number, one will be assigned automatically to the panel. When using multiple panels, different Device Number values have to be assigned to each panel.

1. Press and hold the **Sleep** button to open the *Settings* page.
2. Press the **Protected b**utton, enter **1988** into the on-screen Keypad's password field, and press **Done** when finished.
3. Enter a Device Number value for the panel into the Device Number Keypad. The range is from 1 - 32000.

It's Your World - Take Control™

3000 RESEARCH DRIVE, RICHARDSON, TX 75082 USA • 800.222.0193 • 469.624.8000 • 469-624-7153 fax • 800.932.6993 technical support • www.amx.com

7/2013 ©2012 AMX. All rights reserved. AMX and the AMX logo are registered trademarks of AMX. AMX reserves the right to alter specifications without notice at any time.